(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 December 2003 (04.12.2003)

PCT

(10) International Publication Number
WO 2003/100792 A3

(51) International Patent Classification[7]: H01R 35/00, 39/64

(21) International Application Number: PCT/US2003/015298

(22) International Filing Date: 16 May 2003 (16.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/383,055 24 May 2002 (24.05.2002) US

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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

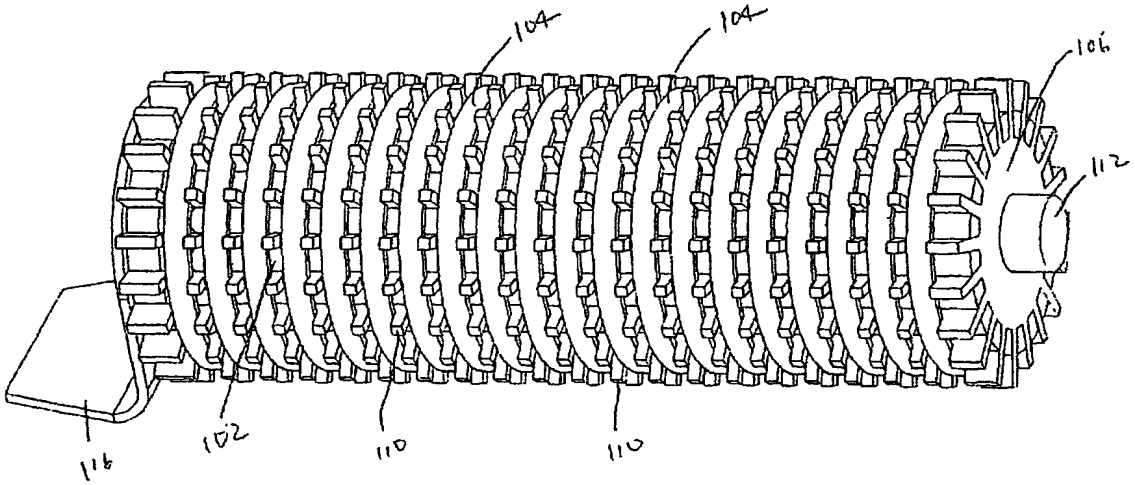
Published:
— *with international search report*
— *with amended claims*

(88) Date of publication of the international search report: 17 June 2004

Date of publication of the amended claims: 26 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HINGE CONNECTOR FOR ELECTRONIC DEVICES



(57) Abstract: A hinge for an electronic device, such as a notebook computer, a personal digital assistant, a cellular telephone, a portable compact disc player and the like, includes a body member and at least one contact provided on the body member. Structure is provided for electrically connecting each contact to a first portion of the electronic device. Structure is also provided for connecting each contact to a second portion of the electronic device. The hinge can be repeatedly used without wear or rubbing action because the ends of the contacts always remain connected to the electrical components of the upper and lower portions of the electronic device. If damaged, only the hinge needs to be replaced and the connections to the electronic device reinstated.

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AMENDED CLAIMS
[received by the International Bureau on 12 May 2004 (12.05.04);
original claims 1, 24 amended, original claims 11, 12, 21 and 22 canceled (4 pages)]

The Invention That is Claimed is:

1. A hinge for an electronic device comprising:

a body member having a plurality of conductive surfaces provided thereon;

a plurality of conductive contacts being in electrical contact with the plurality of conductive surfaces, respective ones of the contacts being associated with respective ones of the conductive surfaces, the contact being capable of movement relative to the conductive surface, yet always maintaining electrical contact with the conductive surface throughout the movement of the contact relative to the conductive surface, wherein each of the plurality of conductive surfaces is formed from a row and a column which are electrically connected to each other, the column extending at least partially around the body member and the row extending along at least a portion of a length of the body member.

2. A hinge as defined in claim 1, wherein at least one rib is provided on the body member between each of the conductive surfaces.

3. A hinge as defined in claim 2, wherein each rib extends outwardly from the body member.

4. A hinge as defined in claim 1, further including a flex circuit electrically connected to the plurality of conductive surfaces.

5. A hinge as defined in claim 4, wherein each row includes at least one conductive bump thereon for providing an electrical connection between the row and a respective one of the columns.

6. A hinge as defined in claim 5, wherein each column is formed from a metal track which is detachable from the body member.

7. A hinge as defined in claim 6, wherein each row is formed by plating a metal surface onto the body member.

8. A hinge as defined in claim 1, further including a flex circuit electrically connected to each of the rows.

9. A hinge as defined in claim 2, further including a plurality of ribs provided on the body member between each of the columns and predetermined ones of the ribs are shorter in height than the remainder of the ribs.

10. A hinge as defined in claim 2, further including at least one rib provided on the body member between each of the rows and at least one rib provided on the body member between each of the columns.

11. A hinge as defined in claim 2, further including a plurality of spaced apart apertures provided on the body member, respective ones of the apertures aligning with respective ones of the columns.

12. A hinge as defined in claim 2, wherein each column is formed from a metal track which is detachable from the body member, each track including a portion which engages into the respective aperture.

13. A hinge as defined in claim 1, wherein the plurality of conductive surfaces are formed by plating a metal onto the body member.

14. A hinge as defined in claim 1, wherein each of the plurality of conductive surfaces is a metal track attached to the body member.

15. A hinge as defined in claim 1, wherein said plurality of contacts are connected together by a housing formed from a non-conductive material.

16. A hinge as defined in claim 15, wherein the body has opposite ends and further comprising a protrusion extending outwardly from each end of the body, and wherein the housing includes opposite end portions, each end portion having a recess therein, respective

protrusions being mounted in the respective recesses.

17. A hinge as defined in claim 1, wherein the body has opposite ends and further comprising a protrusion extending outwardly from each end of the body.

18. A hinge for an electronic device comprising:

a body member having a conductive surface provided thereon;

a conductive contact being in electrical contact with the conductive surface, the contact being capable of movement relative to the conductive surface, yet always maintaining electrical contact with the conductive surface throughout the movement of the contact relative to the conductive surface, wherein the body in cross-section is formed from a first section which is arcuate shaped and a second section which is angled relative to the first section and connected to an end of the first section, the contact contacting the first and second sections during movement.

19. A hinge as defined in claim 18, wherein said body further includes a third section which is flat and is provided between said first and second sections.

20. The hinge of claim 19 in combination with a printed wiring board, wherein the third section of the body is attached to the printed wiring board.

21. A hinge as defined in claim 1, wherein the contact is capable of sliding movement relative to the conductive surface.

22. A hinge as defined in claim 18, wherein the contact is capable of sliding movement relative to the conductive surface.

23. A hinge as defined in claim 1, wherein said body member is generally cylindrical.

24. A hinge as defined in claim 18, wherein said body member is generally cylindrical.

25. A hinge as defined in claim 1, wherein said body member is formed from two halves which when assembled form a cylinder.

26. A hinge as defined in claim 18, wherein said body member is formed from two halves which when assembled form a cylinder.

27. A hinge for an electronic device comprising:

a body member;

a conductive contact associated with the body member, the contact including coiled spring provided within the body member, a first end extending outwardly from the coiled spring and the body member, and a second end extending outwardly from the coiled spring and the body member

28. A hinge as defined in claim 27, wherein the body member includes a body wall and a pair of walls extending outwardly from the body wall, the coiled spring being mounted between the pair of walls and abutting against the body wall.

29. A hinge as defined in claim 28, wherein the body member further includes an aperture therethrough, the coiled spring surrounding the aperture.

30. A hinge as defined in claim 29, wherein a plurality of body members having conductive contacts associated therewith are provided such that the apertures are aligned, and further including a pin provided through the apertures.

31. A hinge as defined in claim 30, wherein each body member further includes a wall surrounding the aperture which extends outwardly from the body wall in the same direction as the pair of walls.

32. A hinge as defined in claim 27, wherein a plurality of body members having conductive contacts associated therewith are provided and are joined together by means for joining.